DETAILED ACTION

Election/Restrictions

1.   Applicant's election without traverse of the embodiment of figure 6 as read on by claims

1-8 in the reply filed on 7/23/09 is acknowledged.

Specification

2.   The specification has not been checked to the extent necessary to determine the presence

of all possible minor errors. Applicant's cooperation is requested in correcting any errors of

which applicant may become aware in the specification.

Claim Rejections - 35 USC § 101

3.   35 U.S.C. § 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or
> any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and
> requirements of this title.

4.   Claims 1-6 are rejected under 35 U.S.C. § 101 as not falling within one of four statutory

categories of inventions. Supreme Court precedent[1] and recent Federal Circuit decisions indicate

a statutory "process" under 35 U.S.C. § 101 must (1) be tied to another statutory category (such

as a particular apparatus), or (2) transform underlying subject matter (such as an article or

material) to a different state or thing[2]. While the instant claim(s) recite a series of steps or acts to

be performed, the claim(s) neither transform underlying subject matter nor positively tie to

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[1] *Diamond v. Diehr,* 450 U.S. 175, 184, (1981); *Parker v. Flook,* 437 U.S. 584, 588 n.9 (1978);
Gottschalk v. Benson, 409 U.S. 63, 70, (1972); *Cochrane v. Deener,* 94 U.S 780, 787-788 (1876).
[2] The Supreme Court recognized that this test is not necessarily fixed or permanent and may
evolve with technological advances. *Gottschalk v. Benson,* 409 U.S. 63, 71 (1972).

another statutory category that accomplishes the claimed method steps, and therefore do not

qualify as a statutory process. Even through there is an apparatus briefly mentioned, associated

elements for the subsequent limitations for executing the method are not present (i.e. elements

are not sufficiently specified for performing the "…determining…", "…searching…",

"…designating…" steps of independent claim 1), nor is the value determination considered

transforming the data, as the processing appears to contained in the spatial domain, *In re Bilski,*

88 USPQ2d 1385 (Fed. Cir. 2008).

Claim Rejections - 35 USC § 102

5.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the

basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.
>
> (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999

(AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002

do not apply when the reference is a U.S. patent resulting directly or indirectly from an

international application filed before November 29, 2000. Therefore, the prior art date of the

reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA

35 U.S.C. 102(e)).

6.   Claims 1-8 are rejected under 35 U.S.C. 102(e) as being anticipated by Au et al.,

(hereinafter referred to as "Au").

Au discloses a method for motion estimation using adaptive patterns in a video sequence

compression system (Au: figure 6), comprising the steps of: (a) determining an initial search

pattern located at a center of a search window in a block of a video frame (Au: column 3, lines

60-65); (b) searching a location of a minimum block distortion measure (BDM) in the initial

search pattern (Au: column 3, lines 1-5); (c) determining a horizontal search pattern for

functioning on the search window in the horizontal direction to search a location of a minimum

BDM in the horizontal search pattern (Au: column 12, lines 25-30); (d) determining a vertical

search pattern for operating on the search window in the vertical direction to search a location of

a minimum BDM in the vertical search pattern (Au: column 12, lines 30-35); (e) designating the

location of the minimum BDM in the initial search pattern to be a motion vector (Au: column 12,

lines 40-45); (f) designating the location of the minimum BDM in the horizontal search pattern

to be a motion vector (Au: column 11, lines 50-60); (g) designating the location of the minimum

BDM in the vertical search pattern to be a motion vector (Au: column 12, lines 5-10); (h)

determining a search pattern to be used in a subsequent searching stage based on the location of

the minimum BDM in the initial search pattern (Au: column 12, lines 10-15); (i) determining a

search pattern to be used in a subsequent searching stage based on the location of the minimum

BDM in the horizontal search pattern (Au: column 13, lines 45-60); and (j) determining a search

pattern to be used in a subsequent searching stage based on the location of the minimum BDM in the vertical search pattern (Au: column 13, lines 45-60), as in claim 1.

Regarding claims 2-3, Au discloses wherein ones of the locations on the initial search pattern, the horizontal search pattern and the vertical search pattern are overlapped and the overlapped search location is excluded in determining a BDM (Au: figure 5), as in the claims.

Regarding claims 4-5, Au discloses determining the vertical search pattern to be a search pattern to be used in a subsequent searching stage in case a minimum BDM occurs at one of the 2n search locations in each of the top and the bottom row (Au: column 12, lines 25-30); (h2) determining the horizontal search pattern to be a search pattern to be used in a subsequent searching stage in case a minimum BDM is found at one of the 2n search locations in each of the left and the right side column (Au: column 12, lines 40-50); and (h3) ending a search process in case a minimum BDM corresponds to the center (Au: column 13, lines 9-20), as the claims.

Regarding claim 6, Au discloses ending a search process in case a minimum BDM occurs at one of 2n search locations in a center of the middle column (Au: column 10, lines 30-45); (j2) selecting the vertical search pattern for a subsequent searching stage in case a minimum BDM is found at one of vertical search locations except the 2n search locations in the center of the middle column (Au: column 10, lines 45-60); and (j3) selecting the horizontal search pattern for a subsequent searching stage in case a minimum BDM is at one of the search locations in the 4n number of search locations in the left and the right column (Au: column 12, lines 1-17), as in the claim.

Au discloses apparatus for motion estimation using adaptive search patterns for a video sequence compression (Au: column 19, lines 10-20), comprising; a current image block

generation means for generating a current image block (Au: column 10, lines 9-20); a previous image block generation means for generating a previous image block; a first and a second memory for storing the image blocks generated by the current image block generation means and the previous image block generation means (Au: column 12, lines 49-65); and a pattern determination and motion estimation means for retrieving data of image block stored in the first and the second memory to search a location of a minimum BDM in a current search pattern of the data of the retrieved image block and determining a next search pattern to be used in a subsequent searching stage depending on the location of the minimum BDM (Au: column 12, lines 1-30), as in claim 7.

Regarding 8, Au discloses wherein the pattern determination and motion estimation means repeatedly estimates a new search pattern to be used in a subsequent searching stage based on a result of a search process performed by using the next search patterns (Au: figure 5), as in the claim.

Conclusion

7.   The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Ma discloses a method for motion estimation in video coding. Lu discloses a fast search method for motion estimation. Rackett discloses motion estimation algorithm suitable for H.261 video/conferencing applications.

8.   Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andy S. Rao whose telephone number is (571)-272-7337. The examiner can normally be reached on Monday-Friday 8 hours.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Mehrdad Dastouri can be reached on (571)-272-7418. The fax phone number for the

organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent

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like assistance from a USPTO Customer Service Representative or access to the automated

information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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